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UNITED STATES DEPARTMENT OF AGRICULTURE,
OFFICE OF PUBLIC ROADS,
Washington, D. C.

NEWS LETTER TO THE FIELD MEN.

No. 4

May 1, 1915.

DIVISIONS:

DIVISION OF CONSTRUCTION.

V. M. Peirce, Chief.

Projects:

Inspection and Advice.

B. F. Heidel, S.H.E., is at Atlanta, Ga., cooperating with Dr. S. W. McCallie, State Geologist, in locating gravel pits and quarry sites to be used for road building purposes. Samples of the materials are shipped to our laboratories for testing and the complete reports will be included in a bulletin to be issued by Dr. McCallie. Cruso, N. C., W. H. Rhodes, H.E., examination of conditions with view to advising assistance this Office could give; Carrollton, Mo., B. H. Burrell, S.H.E., inspection of roads with view to oiling them, consideration sand-clay construction instead, soil examination; Carroll County, Md., R. F. Eastham, H.E., inspection of roads and road conditions, and advising local people in regard to improvement; State of Kentucky, W. F. Brooks, S.H.E., J. A. Whittaker, S.H.E., and R. E. Toms, S.H.E., conferring with State Highway Commissioner at Frankfort with reference to their assistance and cooperation as division engineers. Mr. Brooks will devote all of his time in looking after the State-aid work in about ten counties in southwest Kentucky, having headquarters at Paducah. Mr. Whittaker will remain in charge of the post road at Clarksville, Tenn., and spend as much of his time as practicable in looking after the State-aid work in about eight counties in southern Kentucky, which he may readily reach by railroad. Mr. Toms will continue in charge of the post road in Bath and Montgomery Counties, Kentucky, with headquarters at Mt. Sterling, and will spend as much of his time as may be practicable in looking after the State-aid work in about ten counties conveniently located to his headquarters. Fulton County, Kentucky, B. H. Burrell, lecturing in a bond issue campaign.

Field Experiments.

The work on the Mount Vernon Avenue Road is progressing nicely. The abutments for the bridge over Four Mile Run have been completed. Miami, Florida, Plant Introduction Station, U. S. Bureau of Plant Industry, oil-coralline rock construction, J. H. Eldridge, S.R.C., in charge. Ocala, Florida, sand-clay construction, completed by M. E. Worrell, H.E. Oil-sand and oil-soft-lime-rock construction under way, E. S. Alderman, J.H.E., in charge.

Object-lesson Roads.

The earth object-lesson road at McAlester, Okla., has just been completed. Mr. Wonders has been in charge.

The sand-clay road at Burlington, N. C., was completed about the middle of the month.

Instructions to Students.

The course of instruction in the Office has been completed and the students have been sent into the field.

Bridge Work.

O. L. Grover, Bridge Engineer, in charge. Mr. Grover is ill at home with typhoid fever. O. W. Childs, first assistant bridge engineer is on leave until May 3.

Improvement of Post Roads.

Iowa, Dubuque County: The work of construction is now in progress. C. H. Sweetser, S.H.E., is in charge, assisted by A. L. Hooper, C.E.S., both stationed at Dubuque, Iowa.

Kentucky, Bath and Montgomery Counties: R. E. Toms, S.H.E., Mt. Sterling, Ky., assisted by R. E. Royall, J.H.E., Sharpsburg, Ky., has resumed construction work.

Maine, Cumberland County: As a result of good weather, work was resumed on the road early in April. E. O. Hathaway, S.H.E., is in charge, Yarmouth, Maine, assisted by L. S. Hall, C.E.S.

North Carolina, Davis County: This post road was completed last week.

North Carolina, McDowell County: F. R. Lyons, C.E.S., has been assigned to assist Mr. Rhodes.

South Carolina, Aiken County: Bids were received April 2 for constructing the north section of the road. Dyches and Holley, contractors for the east section, submitted the lowest bid and were awarded the contract. E. S. Alderman, who has been assisting Mr. Weir, is at Ocala, Fla., to superintend a bituminous-sand object-lesson road.

Tennessee, Loudon County: M. E. Worrell, H.E., has returned to his work on the post road.

Texas, Comal and Hays Counties: W. E. Rosengarten, H.E., New Braunfels, Texas, and R. H. Harrison, J.H.E., San Marcos, Tex., are assigned to take charge of constructing those sections of the post road in Comal and Hays Counties. H. C. Wells, S.R.C., and J. W. Janssen, H.E., will be sent on advice and inspection assignments. A 10-inch rainfall on the night of April 22 did considerable damage to the Texas work.

Virginia, Caroline, Hanover, and Spotsylvania Counties: Work is now completed. Mr. Lynch, who was in charge, is now in Albemarle County on advice and inspection assignments.

ALEXANDRIA CO., VA. EXPERIMENTAL ROAD (Bid)

Wm. P. McDonald Construction Co., N. Y.

Clearing and grubbing.....	\$100.00	per	acre
Excavation, earth.....	0.35	per	cu. yd.
Laying corrugated metal pipe:			
15"	0.20	"	lin. ft.
18"	0.25	"	" "
24"	0.30	"	" "
Laying cast iron pipe:			
12"	0.30	"	" "
16"	0.40	"	" "
18"	0.39	"	" "
Concrete:			
1:2½:5	10.00	"	cu. yd.
1:2:4	12.00	"	" "
Reinforcing steel.....	0.04	"	pound.
Shaping subgrade and shoulders.....	0.025	"	sq. yd.
Scarifying and reshaping.....	0.035	"	" "
Foundation course gravel.....	0.95	"	ton.
Wearing course:	<u>Penetration</u>	<u>Mixing</u>	
Sandstone.....	\$0.57	\$0.66	per sq. yd.
Granite.....	0.56	0.65	" " "
Trap.....	0.48	0.58	" " "
Gneiss.....	0.45	0.58	" " "
Gravel.....		0.34	" " "
Concrete guard rail.....	1.00	per	lin. ft.

IOWA PGST ROAD

Dubuque County

Donald Jeffrey, Contractor.

Contract Prices, March 31, 1915.

Earth Excavation ¹	20 cents per cu. yd.
Rock.....	95 " " " "
Shaping subgrade and shoulders.....	3½ " " sq. "
Scarifying and shaping old macadam road	10 " " " "
Gravel Station 0+00 to Station 270+00..	\$1.10 ² per cu. yd.
Gravel Station 270+00 to Station 1230+50	94 cents " " "
Sand for surfacing gravel.....	\$1.70 per ton
Drain tile in place:	
8".....	10 cents per lin. ft.
6".....	8 " " " "
Guard rail:	
Wood posts.....	24 " " " "
Concrete posts.....	23 " " " "
Shoulder drains each.....	25 cents
Culvert Prices:	
65 - 2' x 2'	\$129.50 each
6 - 3' x 2'	151.00 "
1 - 3' x 3'	228.00 "
5 - 4' x 3'	294.00 "

¹500 feet free haul.

²Measured in place in pit.

SOUTH CAROLINA POST ROAD.

North Section.

Contract Prices, April 2, 1915.

Excavation earth.....	17 cents per cu. yd.
Pit clay, in place.....	33 " " " "
Clay overhaul.....	4/5 " " " sta.
Stripping clay pit.....	16 " " " "

Vitrified clay pipe, in place:

12"	35 cents per lin. ft.
15"	50 " " " "
18"	\$1.00 " " " "
24"	1.85 " " " "
30"	2.60 " " " "

Corrugated metal pipe, Laying:¹

12"	40 cents per lin. ft.
15"	42 " " " "
18"	50 " " " "
24"	60 " " " "
30"	70 " " " "
42"	80 " " " "

Brick masonry..... \$19.50 per M.

Force account:

Foreman.....	40 cents per hour
Teams.....	40 " " "
Men.....	12 $\frac{1}{2}$ " " "

¹Pipe furnished by County.

TENNESSEE POST ROAD.

Loudon County.

Contract Prices.

Excavation:

Earth.....	\$0.23	per	cu.	yd.
Rock.....	0.70	"	"	"
Overhaul.....	0.01	"	"	" Sta.

Crushed stone in place.....	\$1.65	per	cu.	yd.
Chert in place.....	0.90	"	"	"
Surfacing overhaul.....	0.01	"	"	" Sta.

Vitrified clay pipe:

12"	0.58	per	lin.	ft.
15"	0.72	"	"	"
18"	1.07 $\frac{1}{2}$	"	"	"
24"	2.00	"	"	"

Corrugated metal pipe:

12"	1.00	"	"	"
15"	1.15	"	"	"
18"	1.40	"	"	"

Relaying pipe culverts.....	.50	"	"	"
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Concrete:

Class "A"	9.25	per	cu.	yd.
Class "B"	9.00	"	"	"
Class "C"	8.75	"	"	"

Reinforcing steel.....	0.04	per	pound
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Cobble gutter.....	1.00	per	sq.	yd.
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Labor.....	\$1.50
Foreman.....	3.00
Teams.....	3.50

TENNESSEE POST ROAD.

Montgomery County.

Contract Prices.

Clearing and grubbing.....	\$62.50	per	acre
Excavation:			
Earth.....	0.23	per	cu. yd.
Ledge.....	0.74	"	" "
Broken stone in place.....	1.56	"	" "
Vitrified clay pipe in place:			
12".....	0.72	per	lin. ft.
15".....	0.90	"	" "
Laying corrugated metal pipe:			
12".....	0.12	"	" "
15".....	0.15	"	" "
18".....	0.18	"	" "
24".....	0.24	"	" "
Dry paving.....	1.00	"	Sq. yd.
Cobblestone gutters.....	0.50	"	" "
Cement rubble masonry.....	5.00	per	cu. yd.
Cement concrete masonry.....	9.00	"	" "
Stone underdrains.....	2.00	"	" "
Guard rail.....	0.20	"	lin. ft.
Labor per hour:			
Teams.....	0.35		
Men.....	0.15		
Foreman.....	0.30		
Roller.....	1.50		

VIRGINIA POST ROAD.

Fairfax County.

Berkeley & Schmidt, Contractors, Richmond, Va.

April 8, 1914.

	Sec. I.	Sec. II.	
Excavation, earth.....	\$ 0.38	\$ 0.37 per cu. yd.	
Clearing and grubbing.....	110.00	110.00 per acre.	
Vitrified clay pipe:			
12"	1.00	1.00 per lin. ft.	
15"	1.40	" " "	
18"	1.75	1.75 " " "	
24"	2.10	2.10 " " "	
Corrugated metal pipe:			
12"	1.35	1.35 " " "	
15"	1.75	1.75 " " "	
18"	1.95	1.95 " " "	
24"	3.00	3.00 " " "	
Drain tile, 5".....	0.35	0.35 " " "	
Stone underdrain.....	0.20	0.20 " " "	
Gravel surfacing.....	0.68	0.67 " cu. yd. ¹	
Piles.....	0.95	0.95 " lin. ft.	
Cobble gutters.....	0.25	0.25 " " "	
Concrete:			
1:2:4.....	11.00	11.00 " cu. yd.	
1:3:6.....	8.50	8.50 " " "	
Reinforcing steel.....	0.05	0.05 " pound	
Road grader.....	16.50	16.50 " day.	
Guard rail (wood).....		0.35 " lin. ft.	

¹Measured in pit.

DIVISION OF ROAD MAINTENANCE.
E. W. James, Chief.

Projects:

Representative State Systems.

With the opening of the road season in the north, it is expected to continue the studies of road maintenance methods in such representative states as New Hampshire, Maine, Massachusetts, and New York, which were started late last year.

Representative County Systems.

The study of county systems in connection with work between Washington and Atlanta and elsewhere is furnishing few results of positive value, but is disclosing the great need of some well-devised simple plan of county road maintenance applicable to counties of small means. The Division is now at work on a system of county maintenance control, having for its basis a county road map and a simple system of control accounts.

Post Road Maintenance.

The construction of higher road types on some post roads is to be followed wherever possible by a cooperative arrangement with the local authorities, which will provide accurate cost data and maintenance records in connection with these roads.

Work has already been done on the Ohio Post Road, which is of concrete, and with the opening season arrangements will be made covering the maintenance of the Maine Post Road eastward from Portland, and probably for the surface treatment and entire supervision of the maintenance of the Maryland Post Road in Montgomery County. This latter road is practically a continuation of the Rockville Pike, and together with the Conduit Road will form a thirty-mile loop north of Washington, D. C. This will provide conditions of traffic and maintenance of unusual value for demonstration purposes.

Washington-Atlanta Highway.

Plans are now under way for a bridge at Dockery Mill, Richmond County, North Carolina. The Dockery Mill bridge is designed as a 75-foot Pratt truss bridge; that at Lynches' River will be seven 30-foot spans, I-beam construction on reinforced concrete bents.

Construction under the bond issue at Benson and Four Oaks in Banner Township, Johnson County, N. C., is progressing satisfactorily.

An inspection, completed in April, of the northern and central sections, indicates that the road, as a whole, is much better than at this season last year and that certain particularly bad sections have been entirely eliminated. In spite of the severe weather conditions during the winter, the entire route under government supervision was brought into good shape about four weeks earlier than has formerly been possible.

So far, only one county of those originally participating in the scheme has withdrawn. This is Dinwiddie County, Virginia, which has been forced to withdraw on account of lack of funds. Mecklenburg and Brunswick Counties, Virginia, and Durham and Wake Counties, North Carolina, have renewed application, as their original applications had expired, and all other counties, so far, have expressed their intention to renew application at the proper date.

Assignments to this road continue as heretofore: (Headquarters subject to change) George C. Scales, U. S. Senior Highway Engineer, 701 North Boulevard, Atlanta, Georgia. W. L. Spoon, U. S. Senior Highway Engineer, Southern Pines, North Carolina. V. E. Towles, U. S. Highway Engineer, Benson, North Carolina. D. H. Winslow, U. S. Supt. of Road Construction, Hotel Malbourne, Durham, North Carolina.

Field Experiments.

Arrangements are being made to re-treat section 1 and approximately one-half of section 2 of the Rockville Pike with refined coal tar, by hot application. Gravel, 5/8-inch washed, will be used for top dressing. The general repairs and patching necessary at this season of the year have been practically completed on the pike, except on sections 3 and 7.

Inspections.

The chief of the division completed a general inspection trip on April 8. Two addresses were made at the Georgia Normal and Industrial College, Milledgeville, Georgia, on April 6 and 7.

D. H. Winslow, S.R.C., visited Kenly, Johnston County, North Carolina, near the route of the Washington-Atlanta Highway, to explain the system of supervision used by the government in handling the work. This visit was the result of an inquiry by local business men who realized that the work on the Highway was being better handled than other work in their own neighborhood.

W. L. Spoon, S.R.C., visited Greenville, S. C., on April 30 to deliver addresses descriptive of the various types and methods of road building.

New Projects.

Approval has been asked for two new projects to come under this Division.

1. Bituminous-sand road maintenance: This is a project at present confined to Florida and eastern Massachusetts. The success and development of bituminous-sand construction in those sections where sand is practically the only available road material, depends so largely on economical maintenance of the bituminous-sand that it is believed the Office should closely follow all attempts at bituminous-sand construction that have been made. To determine the value and economy of this type of road, the action of the road under traffic, and methods and costs of maintenance will have to be closely studied.

2. Demonstration maintenance in Hernando, Pasco, Pinellas, and Lee Counties, Florida: Construction in these counties during the present season will complete a section of road about seventy miles long in the first three counties and eighteen miles long in the latter county. It will include practically all types of road actually used in Florida and, being practically continuous, will provide an excellent opportunity for demonstration maintenance on a large scale similar in detail to that on the Washington-Atlanta Highway, and in Montgomery County, Md.

The approval of these projects will require the assignment of an engineer to points in Florida for an indefinite period, providing cooperation with the necessary local administrative units is effected.

DIVISION OF NATIONAL PARK AND FOREST ROADS.
T. W. Allen, Chief.

Projects:

National Forest Roads.

Construction work is gradually being resumed throughout the Forest Service Districts, and a number of lectures have been delivered by our engineers in the state agricultural colleges.

National Park Roads.

Plans and cross-sections have been completed for the El Portal-Yosemite Road and the Ranger-North Park Line Road in Yosemite and Sequoia Parks, and specifications are now being prepared in the Office.

DIVISION OF PHYSICAL TESTS, FIELD EXPERIMENTS,
AND RURAL ENGINEERING.

E. B. McCormick, Mechanical Engineer.

Projects:

Physical Tests.

In addition to the usual number of routine physical tests on road building materials, 49 tests have been completed for the Association of American Portland Cement Manufacturers, to determine the suitability of aggregates for concrete roads. The aggregates tested were taken from that supplied for actual construction. Owing to the fact that the matter was taken up hurriedly at a late date, the Association was unable to secure sufficiently large samples to enable thorough tests to be made. This lack will be remedied in the future.

The fourth series of contraction and expansion measurements on the Ohio Post Road, will be taken during the month of May, by F. H. Jackson and an assistant.

Tests on the second reinforced concrete bridge slab are being continued, but have not yet been completed.

The 200,000 pound Riehle testing machine, now located in the north end of the back laboratory, will be moved to the Concrete Laboratory, erected by this Office on the Arlington Farm. It will occupy space until now used for storing the dynamometer car and wagon.

Field Experiments

Post road traction records are being worked up as rapidly as possible, and the results are being tabulated. Preliminary tests have been made at Aiken, S. C., and were started at Old Fort, N. C., but on Tuesday, April 27, the dynamometer wagon, in charge of Elmer Johnson, was struck by a train of the Southern Railway, and practically demolished. Besides Mr. Johnson, there were two teamsters on the wagon, but fortunately all three escaped without any injury. Steps are being taken to construct another dynamometer, and it is hoped to have it in operation within three months from this date, and in plenty of time to complete the post road tests.

Rural Engineering.

The work in Farm Structures, formerly carried on in the Bureau of Plant Industry, has become a section of Rural Engineering, and will have Offices on the third floor of the Willard Building. This work is new in the Department, and is now handled by an architect, W. A. Etherton, and four assistants, namely: W. Ashby, Barn Architect; M. C. Betts, Assistant Architect; C. Kruegl, Architectural Draftsman; W. R. Humphries, Scientific Assistant. One of these assistants is doing investigation work in Kansas, and another is to work soon in the Gulf States. The data obtained from the field is used in the preparation of building plans for the farmstead.

DIVISION OF CHEMISTRY.

C.S.Reeve, Chemist.

Projects:

Chemical Testing of Road-Construction Materials.

The routine work of the Chemical Laboratory has probably been larger in volume during April than in any single month since the laboratory was established. This was largely brought about through extensive investigations of completed and projected bituminous sand projects in Florida. Examinations have been made on samples obtained from Tarpon Springs, Mt. Dora, Sebring, Sarasota, and Dade City so that the Office is now well informed on these recently completed pieces of construction.

Experimental Bituminous Road Construction and Maintenance.

Necessary repairs preliminary to complete retreatment are now in progress on the drives of the Agricultural Grounds, Washington, D. C. B. F. Anderton, Assistant Chemist, is in charge.

Plans are completed and materials ordered for the construction of a bituminous sand section at Ocala, Florida, under the supervision of the Office. This will constitute one section of a small experimental road of which a section of sand-clay construction has been completed, and to which a section of bituminous macadam will be added, using a soft native limestone. The latter will be carried out along lines similar to the oil-coralline rock construction which has shown marked success.

The maintenance of existing experiments in the vicinity of Washington is being carried on cooperatively with the Division of Maintenance, and Experiment No. 1 and part of Experiment No. 2 on the Rockville Pike will be given a surface treatment of hot coal tar during the coming month. Additional experiments in surface treatment of the concrete sections at Chevy Chase are also contemplated for early trial.

The laboratory has completed the inspection at the refineries of the bituminous materials to be used on the Mt. Vernon Avenue Experimental Road. The galvanized culvert metal for the Texas Post Road was also inspected at the mill.

Benj. Kamrass, Laboratory Aid, attended to the inspection of the bituminous materials and is at present inspecting another lot for the Maine Post Road at the Bayonne Refinery of the Standard Oil Company. Fred P. Pritchard, Assistant Chemist, inspected the culvert metal at Canal Dover, Ohio.

Owing to the large volume of samples to be tested and the reduced force incident to plant inspections, little experimental work has been carried on during the month.

DIVISION OF ROAD ECONOMICS.

J. E. Pennybacker, Chief.

Projects:

General Statistical and Research Investigations.

Practically all State highway departments are now collecting for this Office data on road mileage, revenues, and expenditures for the year 1914, to be used in the preparation of a bulletin.

Reports have now been received from all State highway departments, showing expenditures of state funds classified according to construction, maintenance, general engineering, and administration, together with data as to road mileage, etc.

Convict Labor Studies.

The preparation of an official publication, embodying the results of an investigation of convict road camps in all parts of the United States by W. F. Draper, Past Assistant Surgeon of the Public Health Service, and H. S. Fairbank, H.E., of this Office, is rapidly proceeding, and it is hoped to have the manuscript ready for publication by July.

Model Convict Camp.

Arrangements have been made with the State Highway Department and the State Superintendent of Prisons of Virginia, for establishing a model convict camp at Charlottesville, which will comprise structures, equipment, sanitation, dietary arrangements, management, etc., in accordance with plans and specifications of this Office, and which will be conducted in accordance with instructions to be given by this Office. This project will be of the greatest interest, as it will embody the conclusions reached as a result of the studies already made.

Economic Study of Highway Systems.

Study of State highway departments, their organization, and operation, has been completed by E. H. Barber, H.E., in eleven states. Mr. Barber has temporarily discontinued this work on account of an assignment to the State highway department of Kentucky to aid that department in organization and in the installation of a system of reporting and record.

County studies are continuing along lines previously announced. R. F. Eastham, H.E., A. S. Brainard, S.H.E., and J. J. Tobin, A.R.E., are engaged in this work.

Post Road Studies.

First studies have been made on all of the 17 post roads, and final studies have been made on two, namely: The post roads in Spotsylvania, Caroline and Hanover Counties, Virginia, and Montgomery County, Maryland. Final studies on other post roads will be made as soon as the roads are completed.

Traffic Census.

Traffic studies are continuing as heretofore.

Lectures and Demonstration of Road and Bridge Models.

M. O. Eldridge, A.R.E., continues in charge of the exhibit of the Office at the Panama-Pacific Exposition in San Francisco. During the past month a road model exhibit was made at Little Rock, Arkansas. The model on display at Montgomery, Alabama, is still on exhibition. Five lectures were delivered during April, and J. J. Tobin has been assigned to give a lecture at Portland, Indiana, on May 19.

DIVISION OF DRAINAGE INVESTIGATIONS.
S. H. McCrory, Chief.

Reports Transmitted.

- 1 D-5 Davis Farm, Worcester County, Md., by J. R. Haswell.
- 1 D-5G Ridgely Substation Experiment Farm, Caroline County, Md.,
by J. R. Haswell.
- 2 D-8X Dutchman Creek, Davie Co., N. C., by H. M. Lynde.
- 1 D-8X Hardison Farm, Anson Co., N. C., by H. M. Lynde.
- 1 D-8X Moore Farm, Edgecombe Co., N. C., by F. R. Baker¹
- 1 D-8X Robeson County Farm Life School, Robeson Co., N. C.,
by H. M. Lynde.
- 1 D-8X Shook Farm, Tarboro, N. C., by H. M. Lynde and F. R. Baker¹
- 2 D-8X Snow Creek, Iredell Co., N. C., by H. M. Lynde.
- 2 D-8X South Yadkin River, Iredell Co., N. C., by H. M. Lynde.
- 1 D-9 Ashepoo Plant Company Farm, Colleton Co., S. C., by
F. G. Eason.
- 2 D-9 Buckfield Lodge, Hampton Co., S. C., by F. G. Eason.
- 2 D-10 Indian Creek, Henry, Spaulding, and Butts Cos., Ga.,
by J. V. Phillips.
- 2 D-18 Platte River Drainage District, Ringgold Co., Iowa.,
by G. M. Warren.
- 2 D-29 Black Swamp Drainage District, Lee Co., Ark.,
by O. G. Baxter.
- 3 D-34F Twin Falls Tract, Hydraulics of Relief Wells Idaho,
by W. G. Sloan.
- 4 D-36I Hiatt Tract, near Canon City, Colo., by L. T. Jessup.
- 4 D-36I Hoskins Tract, near Canon City, Colo., by L. T. Jessup.
- 4 D-36I Pressey Tract, near Canon City, Colo., by L. T. Jessup.
- 2 D-37A Drainage in the Vicinity of Columbus, New Mexico
(Inspection), by D. E. Heizer.
- 2 D-38B Gila Valley (Inspection) Ariz., by D. E. Heizer.

Reports Received.

- 1 D-5 Price Farm, Wye Mills, Md., by J. R. Haswell.
- 1 D-8X Farm Drainage in North Carolina, by H. M. Lynde.
- 1 D-8X Griffin Farm, Cameron Co., N. C., by H. M. Lynde.
- 1 D-10 Harris Farm, Hancock Co., Ga., by J. V. Phillips.
- 2 D-32 Barstow Drainage District (Inspection), Ward Co., Texas.,
by D. E. Heizer.
- 2 D-32 Drainage in the Vicinity of Fort Stockton, Texas.,
by D. E. Heizer.
- 1 D-32 Garten Verein Property, Galveston, Texas, by H. A. Kipp.
- 2 D-32 Grand Falls Drainage District (Inspection) Ward Co.,
Texas, by D. E. Heizer.
- 1 D-32L Angleton Experiment Station, Angleton, Texas,
by H. A. Kipp.
- 2 D-43 Imperial Valley, Calif., by W. W. Weir.

¹Assistant Drainage Engineer to H. M. Lynde, employed
by the North Carolina Department of Agriculture.



Conferences, New Field Work, Etc.

Arrangements have been made for making a drainage survey of the Panther Creek Drainage District, Daviess Co., Kentucky. H. A. Kipp, who has been assigned to this work, will commence the survey about May 10.

O. G. Baxter the latter part of the month made an examination of drainage conditions along the Quiver River, Mississippi.

C. E. Ramser has completed run-off investigations in Mississippi and will leave that State about May 1 to take up similar investigations along the Kootenai River in Idaho.

W. G. Sloan has taken up the season's work in the vicinity of Twin Falls. This year the work will be conducted in co-operation with the Division of Irrigation Investigations of this Department and the Twin Falls Canal Company, Twin Falls, Idaho.

F. G. Eason has completed the survey of Gills Creek, South Carolina.

Lewis A. Jones, assisted by W. A. Kelly, has completed the field work on the Kootenai River Drainage District project.

George M. Warren made an examination of the Platte River Drainage District in Ringgold County, Iowa. Before returning to Washington he visited the Public Library at Muscatine, Iowa, for the purpose of collecting rain fall data to be used in the revision of O.E.S. Bulletin 243.

S. H. McCrory, in company with J. R. Haswell, made an inspection of drainage conditions in Maryland, Delaware and New Jersey. A special examination was made of the Newton Meadows in Sussex Co., New Jersey. This project involves reclamation of muck lands.

Plans are being worked out for an extensive series of tests to determine the value of "n" in Kutter's formula for drain tile. These tests will be conducted at the Arlington Experimental Farm and will be made on tile ranging in size from 4 to 12 inches in diameter. S. W. Frescoln will have direct charge of this work.

Miscellaneous.

The manuscripts "Trenching Machinery for Tile Drain Construction," and "Excavating Machinery used in Land Drainage," both prepared by D. L. Yarnell, have been submitted for publication. The former is a Farmers' Bulletin and the latter is a Department Bulletin.

On March 15 the Governor of Delaware signed a new drainage law for that State. J. R. Haswell conferred with the Chairman of the Delaware Drainage Commission in preparing the bill.

DIVISION OF IRRIGATION INVESTIGATIONS.
Samuel Fortier, Chief.

In the absence of Dr. Samuel Fortier, who is on leave of absence from the Department, the supervision of the work of Irrigation Investigations has been under R. P. Teele, Irrigation Economist. F. G. Harden, formerly of the Washington Office, has been detailed to the Montana Field for the irrigation season, to resume the duty of water studies begun last summer under the direction of S. T. Harding, in cooperation with the Montana Experiment Station.

Frank Adams, Irrigation Manager, in charge of the cooperative work in California, is preparing a report on Irrigation Districts, field work for which was finished last fall. Duty of water studies in California have been resumed, those at the Davis farm of the University of California being in charge of S. H. Beckett, Irrigation Engineer. R. D. Robertson, I.E., is directing the studies in Sacramento Valley, while F. J. Veihmeyer, Assistant Irrigation Engineer, is in similar investigations in Imperial Valley under the immediate direction of C. E. Tait, Irrigation Engineer. Mr. Tait is completing a report on cooperative irrigation enterprises which he expects to submit within a few weeks.

Don H. Bark, for several years in charge of the investigations in Idaho, expects to leave the Department during May to join the agricultural advisory staff of the Canadian Pacific Railway. For the present season it is contemplated to have the Idaho work continue under Mr. Bark's former assistants. The duty of water investigations at the Twin Falls Farm will be under the supervision of E. A. Beck, Agent, while J. S. Welch, Agent, will supervise the Department's interests in the similar cooperative work at the Gooding Farm. An investigation recently authorized, to study the control of seepage, will continue under the supervision of W. G. Sloan, Drainage Engineer, the project being a cooperative investigation by the Irrigation and Drainage Divisions. This work will be conducted at Twin Falls.

V. M. Cone, Irrigation Engineer, in charge of cooperative work in Colorado, has submitted a series of reports based on . . . studies conducted during the past year in the Fort Collins hydraulic laboratory. The most important of these, on "Flow through Weir Notches with Thin Edges and Full Contractions," has been put in shape for publication and will probably be submitted to the editorial committee of the Department within a few weeks. Work at the laboratory has again been resumed; and in addition to the studies there a new field investigation is planned for the 1915 season on the efficiency of reservoirs in storing irrigation water.

F. L. Bixby, Irrigation Engineer, in charge of the work in New Mexico, is conducting experiments and making measurements to determine the best practice in irrigation; also testing pumps and measuring devices. The New Mexico experiment station is

cooperating in these investigations. Mr. Bixby's headquarters are at the State College. R. B. Sleight, Assistant Irrigation Engineer, who assisted in the New Mexico field last year, has been engaged in special studies in hydraulics at the University of Michigan during the winter, but expected to return to work in the field in June.

H. C. Diesem, Irrigation Engineer, has charge of the irrigation work in the semi-arid states north of Texas, supervising the experiments at the Garden City substation of the Kansas Experiment Station and carrying on a special investigation of the effect of the storage of water on the North Platte River on the ground water levels in the Platte River in Nebraska. Mr. Diesem is also collecting data as to the cost of operating pumping plants in Kansas and Nebraska. His headquarters are at North Platte, Nebraska.

P. E. Fuller, Irrigation Engineer, in charge of work in Arizona and of general pumping investigations, has submitted the second part of an exhaustive report on pumping for irrigation. A third chapter which will complete the report is in preparation. Field investigations in the Arizona field include studies in duty of water, at Higley, which were begun in previous seasons. J. C. Marr, Assistant Irrigation Engineer, who spent the winter in Washington assisting in Office computations, has returned to the Arizona field and resumed his work there.

A report of irrigation of rice, submitted as a farmer's bulletin, has been received from C. G. Haskell, Irrigation Engineer, in charge of investigations in the rice belt of Arkansas, Louisiana, and Texas. In case agreements now pending with the Nevada Experiment Station and the State Engineer of Nevada are finally entered into it is probable that Mr. Haskell will be detailed to supervise the work, which will have to do mainly with pumping as well as a continuation of the more general studies conducted in the Nevada field in previous seasons by F. L. Peterson, Irrigation Engineer, who expects to leave the Department before the end of the fiscal year.

J. T. Kingdon, Irrigation Engineer, who spent the 1914 season in an investigation of chutes and drops, has been detailed to take charge of the work in Wyoming. It has been decided to close the work formerly conducted at the Cheyenne and Newcastle Farms and to substitute for it an investigation of the use of water in Wyoming. John Gordon, Irrigation Farmer, will continue his work in irrigation practice.

W. L. Rockwell, Irrigation Engineer in charge of work in Texas, is carrying on experiments in the duty of water, Mercedes. He is assisted by P. S. Jones, formerly one of the state employees in the Colorado cooperative work, who has received a Civil Service appointment.

F. C. Scobey, Irrigation Engineer, will begin field work in a continuation of investigations of the flow of water in conduits during the present month. The 1915 work will follow lines similar to those adopted last year, but will have to do with concrete instead of wood pipes, which were studied last year.



M. B. Williams, Irrigation Engineer, who is in charge of irrigation investigations in the humid states, is engaged principally in advising eastern farmers as to irrigation equipment. He is assisted by F. W. Stanley, Irrigation Engineer, who will leave his present headquarters at Orlando, Fla., during the present month for field work in the northeastern states.

L. M. Winsor, Agent, has been put in charge of the cooperative work in Utah, where his present work consists in measurements of water used in irrigation, and advising farmers on pumping for irrigation.

W. W. McLaughlin, Irrigation Engineer, who for several years has had charge of cooperative work in Utah, has been assigned to special studies of the movement of water in soils. This work will be done in California.

The May News Letter is not a complete report for the month's work, nor is it arranged correctly in a number of places in connection with the work under various projects. All this is due to the fact that the different divisions have been much hindered in their work, during the moving of the Office of Public Roads, the Divisions of Irrigation and Drainage Investigations, and the Office of Farm Architecture, to the Willard Building, 513-517 14th Street, N. W., the new home of the Office of Public Roads and Rural Engineering. The work of moving began on April 26 and will probably be finished during the first week of May. A directory of the building, giving the location of the various offices, will be given next month.

